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**Rousseau et al.**

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(54) **IMPLANTABLE REPAIR DEVICE**

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(57) **ABSTRACT**

An implantable prosthesis for repairing or reinforcing a tissue or muscle wall defect including a first composite structure including at least one layer of a non-absorbable material, wherein the first composite structure has a central portion sized and shaped to cover at least a portion of the tissue or muscle wall defect, and has an outer periphery. The prosthesis further includes a second structure having a reinforced central region and an outer peripheral edge, a reinforcing element positioned between the first and second structures, and having an outer periphery and a stiffness greater than that of the first and second structures, and at least one pulling element coupled to the reinforced central region of the second structure. The second structure is coupled to the first structure substantially only at their respective peripheries.

**24 Claims, 7 Drawing Sheets**

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(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 817 days.

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(65) **Prior Publication Data**

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(52) **U.S. Cl.**

CPC ..... **A61F 2/02** (2013.01); **A61F 2/0063** (2013.01); **A61F 2002/0068** (2013.01); **A61F 2210/0004** (2013.01)

(58) **Field of Classification Search**

CPC ..... A61B 17/685; A61B 17/8695; A61B 17/12168; A61B 17/12172; A61B

